REMARKS

The Patent Office rejected Claims 4-7 and 9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Additionally, the Patent Office rejected Claims 1-7 and 9 under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over United States Patent Number 5,714,428 ("Le-Khac"). These rejections are respectfully traversed.

Summary of the Invention:

Applicants' claimed invention is directed to highly active double-metal cyanide ("DMC") catalysts, the process for preparing those DMC catalysts, and the use of those DMC catalysts. The DMC catalysts of Applicants' claimed invention comprise one or more DMC compounds, one or more organic complex ligands, and 2 to 80 wt.% of a polycarbonate. The DMC catalysts of Applicants' invention have markedly shortened induction times and simultaneously a greatly increased activity in the preparation of polyether polyols.

Amendment to Claim 4:

Applicants have amended Claim 4 to indicate that the polycarbonate of Claim 4 is the polycarbonate listed as c) in Claim 1. Support for this amendment is found in the Application on page 2, lines 27-28, as well as on page 5, lines 1-3.

Rejection of Claims 4-7 and 9 under 35 U.S.C. § 112, second paragraph:

Claims 4-7 and 9 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. The Patent Office states that the reference to "a polycarbonate" in Claims 4-7 renders the Claims indefinite as it is unclear as to whether the reference is to the same polycarbonate of Claim 1 or to an additional polycarbonate.

Applicants believe that Claim 4 (which depends from Claim 1) is not indefinite as it is clear from the language of Claim 4 that the polycarbonate of Claim 4 is the polycarbonate of Claim 1. Applicants have, however, amended Claim 4 to specifically state that the polycarbonate of Claim 4 is the polycarbonate listed as c) in Claim 1. Support for this amendment is found in the Application on page 5, lines

1-20. Applicants believe that this amendment removes the basis for the rejection of Claim 4. Thus, Applicants respectfully request that the Patent Office withdraw its rejection of Claim 4 under 35 U.S.C. § 112, second paragraph and enter allowance of this Claim.

The Patent Office rejected Claims 5-7 under 35 U.S.C. § 112, second paragraph, again arguing that the Claims are indefinite due to the reference in the Claims to "a polycarbonate." Claim 5, which depends from Claim 4, does not refer to "a polycarbonate" but rather to aliphatic polycarbonates having hydroxyl end groups and average molecular weights below 12,000. This Claim is clearly supported by the specification. *See* the Application, page 6, lines 5-9. It is Applicants' position that Claim 5 is not indefinite. Thus, Applicants respectfully request that the Patent Office withdraw its rejection of Claim 5 under 35 U.S.C.
§ 112, second paragraph and enter allowance of this Claim.

Claim 6, which depends from Claim 1, also does not refer to "a polycarbonate" but rather to aliphatic polycarbonate-diols with average molecular weights of 400 to 6000. This Claim is clearly supported by the specification. *See* the Application, page 6, lines 5-9. It is Applicants' position that Claim 6 is not indefinite. Thus, Applicants respectfully request that the Patent Office withdraw its rejection of Claim 6 under 35 U.S.C. § 112, second paragraph and enter allowance of this Claim.

Claim 7, which depends from Claim 1, does not refer to "a polycarbonate." Claim 7 is directed to a process for the preparation of the DMC catalysts of Claim 1. This Claim is clearly supported in the specification. *See* the Application, page 7, lines 20-31; page 8, lines 1-30. It is Applicants' position that Claim 7 is not indefinite. Thus, Applicants respectfully request that the Patent Office withdraw its rejection of Claim 7 under 35 U.S.C. § 112, second paragraph and enter allowance of this Claim.

Claim 9 stands rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. The Patent Office believes that the Claim is indefinite for failing to set forth appropriate reaction conditions for the claimed process. Applicants respectfully submit that Claim 9 is not indefinite.

In rejecting a claim under 35 U.S.C. § 112, second paragraph, it is incumbent on the Examiner to establish that one of ordinary skill in the pertinent art, when reading the claims in light of the specification, would not have been able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims. Ex parte Wu, 10 U.S.P.Q.2d 2031, 2033 (B.P.A.I. 1988). In determining whether claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity, the definiteness of the claim language must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. In re Moore and Janoski, 169 U.S.P.Q. 236 (C.C.P.A. 1971). One having ordinary skill in the art, after reading Applicants' specification, would certainly be able to ascertain with not only a reasonable degree of precision and particularity, but rather with a great deal of precision and particularity, the reaction conditions for the process set forth in Claim 9.

Specifically, on page 9, lines 25-27 of the Application, Applicants clearly recite the temperature ranges for polyaddition of alkylene oxides onto starter compounds. Also on page 9 of the Application, at line 28, Applicants disclose that the polyaddition of alkylene oxides onto starter compounds is carried out at total pressures of 0 to 20 bar. Additionally, Applicants' specification discloses that such polyaddition can be carried out without a solvent or an inert organic solvent such as toluene and/or THF, with the amount of solvent conventionally being 10 to 30% based on the amount of polyether polyol to be prepared. *See* the Application, page

9, lines 27-31. Finally, on page 10 of the Application, Applicants disclose the catalyst concentration used in the polyaddition reaction, as well as the polyaddition reaction times and polyaddition process methods. *See* the Application, page 10, lines 1-21.

Claim 9 of Applicants' invention, construed in light of the specification, clearly describes the invention to one having ordinary skill in the art in sufficient detail so as to allow that skilled artisan to ascertain, with a reasonable degree of precision and particularity, Applicants' claimed process for the polyaddition of alkylene oxides. Claim 9 is thus not indefinite under 35 U.S.C. § 112, second paragraph. Applicants respectfully request that the Patent Office withdraw its rejection of Claim 9 under 35 U.S.C. § 112, second paragraph, and enter allowance of this Claim.

Rejection of Claims 1-7 and 9 under 35 U.S.C. § 102(e):

Claims 1-7 and 9 stand rejected as being anticipated by Le-Khac. It is the Patent Office's position that Le-Khac discloses a DMC catalyst composition containing about 2 to about 80% of a functionalized polymer and that this polymer can be a polycarbonate. The Patent Office concedes, however, that Le-Khac discloses many other functionalized polymers not within the scope of the instant claims. However, it is the Patent Office's position that Le-Khac clearly anticipates Applicants' claimed invention.

In order for a reference to anticipate, it must describe Applicants' claimed invention sufficiently to have placed a person of ordinary skill in the art in possession of it. *See* Akzo N.V. v. United States Int'l Trade Comm'n, 808 F.2d 1471, 1479, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). Le-Khac does not describe Applicants' claimed invention so as to place a person of ordinary skill in the art in possession of it.

As the Patent Office concedes, Le-Khac discloses many other functionalized polymers not within the scope of the Applicants' claimed invention. The examples in Le-Khac disclose the following functionalized polymers: poly(N,N-dimethylacrylamide); poly(1-vinylpyrrolidone); poly(1-vinylpyrrolidone-coacrylic acid); poly(vinyl methyl ether); polyether polyol; and polyester polyol. *See* Le-Khac,

Examples 1-9. On the other hand, Applicants disclose, in Examples 7 and 8 of the Application, that polyether polyols prepared with DMC catalysts containing polycarbonates exhibit markedly reduced reduction times and greatly increased activity. Le-Khac does not describe a DMC catalyst made with a polycarbonate, nor does it suggest that a DMC catalyst prepared with a polycarbonate would have shortened reduction times or increased catalytic activity.

Since one skilled in the art, after reading Le-Khac, would not have been in possession of Applicants' claimed invention, Le-Khac cannot be said to anticipate Applicants' claimed invention. Applicants therefore respectfully request that the Patent Office withdraw its rejection of Claims 1-7 and 9 under 35 U.S.C. § 102(e) and enter allowance of these Claims.

Rejection of Claims 1-7 and 9 under 35 U.S.C. § 103(a):

The Patent Office rejected Claims 1-7 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Le-Khac. It is the Patent Office's position that Le-Khac discloses DMC catalyst compositions containing about 2 to about 80 wt.% of a functionalized polymer, and that this polymer can be a polycarbonate. The Patent Office concedes, however, that Le-Khac discloses many other functionalized polymers not within the scope of the instant claims. However, it is the Patent Office's position that Applicants' claimed invention would have been obvious to one having ordinary skill in the art because it would have been within the skill of the practicing artisan to select one of the possibilities disclosed by the reference.

In order to support a rejection based on obviousness, the prior art must provide a motivation or reason for the worker in the art, without the benefit of the Applicants' specification, to make the necessary changes in the reference invention. *See* Ex parte Chicago Rawhide Manufacturing Co., 226 U.S.P.Q. 438 (PTO Bd. App. 1984).

The working Examples of Le-Khac disclose the following functionalized polymers: poly(N,N-dimethylacrylamide); poly(1-vinylpyrrolidone); poly(1-vinylpyrrolidone-coacrylic acid); poly(vinyl methyl ether); polyether polyol; and polyester polyol. *See* Le-Khac, Examples 1-9. None of the working Examples in Le-Khac disclose a DMC catalyst comprising a polycarbonate as the functionalized

polymer. In order to arrive at Applicants' claimed invention from the teachings of Le-Khac, not only would the polycarbonates themselves have to be discovered from the broad range of different functionalized polymers disclosed by Le-Khac, but also the amount of polycarbonate to be used would also have to be discovered. Such discoveries could only be accomplished by using Applicants' disclosure as a blueprint to modify the teachings of Le-Khac.

Even assuming, *arguendo*, that the skilled artisan could "select" Applicants' polycarbonates from the disclosure in Le-Khac, Applicants' claimed invention would still be non-obvious in view of Le-Khac. Catalyst development is an unpredictable science. *See* Exhibit 1, Kirk-Othmer, *Encyclopedia Of Chemical Technology*, 4th Ed., Vol. 5, p. 368, wherein it is stated that "[C]atalyst development is largely a matter of trial and error testing." Given the unpredictable nature of catalysis, the skilled artisan would not have been able, without the benefit of Applicants' disclosure, to predict the change in catalytic activity disclosed by Applicants' claimed invention. The inability to predict this change renders Applicants' claimed invention non-obvious. Applicants' invention, therefore, is patentable over Le-Khac. Applicants thus respectfully request that the Patent Office withdraw its rejection of Claims 1-7 and 9 under 35 U.S.C. § 103(a) in view of Le-Khac and enter allowance of these Claims.

CONCLUSION

For the foregoing reasons, Applicants respectfully request: that the amendment of Claim 4 be entered; that the rejection of Claims 4-7 and 9 under 35 U.S.C. § 112, second paragraph, be withdrawn; that the rejection of Claims 1-7 and 9 under 35 U.S.C. § 102(e), be withdrawn; that the rejection of Claims 1-7 and 9 under 35 U.S.C. § 103(a), be withdrawn; and that pending Claims 1-7 and 9 be allowed to issue as a U.S. patent.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 4 has been amended as follows:

4. (Twice Amended) The DMC catalyst according to Claim 1, in which from about 5 to 50 wt. % of [a] polycarbonate c) is present.